

Assessing Safety Climate:

Command Safety Assessment Survey

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Bob Figlock, Ph.D.

Naval Postgraduate School
Monterey, CA

JSSC Conference
28 July 2004

Itinerary

I. Past

II. Present

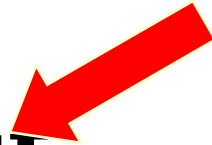
a. Application

b. Research

III. Future

Itinerary

I. Past



II. Present

a. Application

b. Research

III. Future



Naval Aviation Class A Flight Mishap Rate



Predominant Use of Engineering & Administrative

Itinerary

I. Past

II. Present



a. Application

b. Research

III. Future

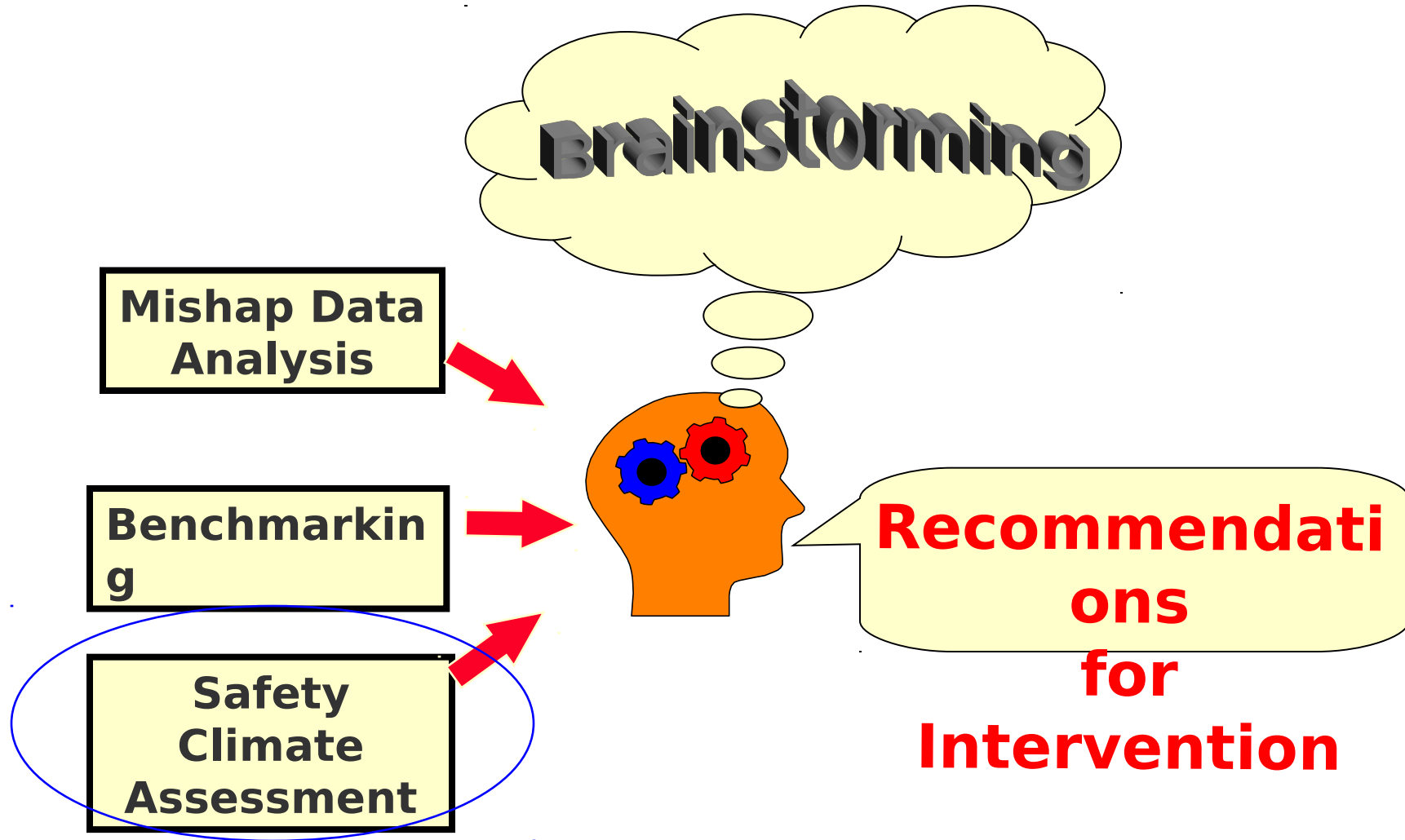
Watershed Event

- January 1996
- Nashville, TN
- Navy F-14 crashes into local neighborhood killing:
 - Two aircrew
 - Three local residents
- Mishap investigation opens the eyes of Naval Aviation leadership....





Human Factors Quality Management Board (HFQMB)





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Command Safety Climate Assessment Surveys



High Reliability Organizations

HROs -- Organizations have less than their “fair share” of failures despite:

- managing complex & demanding technologies
- meeting peak requirements & time pressures
- routinely handling significant risks & hazards
- executing dynamic/intensely interactive tasks

(Roberts, 1990)

HRO Model Components

- | | |
|-----------------------------|--------------------|
| -- Process Auditing | -- Risk Management |
| -- Reward System
Control | -- Command & |
| Quality Assurance | |



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SURVEY INSTRUCTIONS

SURVEY OVERVIEW

SAMPLE SURVEY

TAKE A SURVEY

SURVEY ADMIN

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SAMPLE GO ACCESS

SITE MAP

HELP / FAQ

CONT

SUGGE

Command Safety Climate Assessment Surveys



-- On-line Diagnostic Tool

-- Based on HRO Theory

-- Designed for Operational Personnel

-- Focuses on Key Operational Issues

-- Results are Confidential
(Password Protected)

-- Data Available in Aggregate
Database

-- Can Compare Your Data

SAMPLE SURVEY (MCAS/NADEP)

PART I. DEMOGRAPHIC INFORMATION

The following survey is a **SAMPLE**. No actual responses will be recorded.
For the actual survey, no individual's demographic data will be made available to any CO.

Your Grade/Rank:

Total years aviation maintenance experience:

Total years Naval Aviation Depot experience:

Your current job/trade:

Total years in your current job/trade:

Your primary shift:

Your primary program:
(Select all that apply)

☐ A-4
☐ AH-1
☐ AV-8
☐ C-130

Your status:

Your Service:

Your parent command:

Your unit's location:

Closed-ended Items

44. The next quality defect will be caused by.... (200 words max.)

☐ No comment ☐ My response is:

45. The next quality defect can be prevented by (200 words max.)

☐ No comment ☐ My response is:

Demographic Data

The following survey is a **SAMPLE**. No actual responses will be recorded.

1. The NADEP adequately reviews and updates safety procedures.

☐ Strongly Disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly Agree ☐ N/A
☐ Don't Know

2. The chain of command monitors artisan qualifications and has a program that targets training deficiencies.

☐ Strongly Disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly Agree ☐ N/A
☐ Don't Know

3. Supervisors use safety and medical staff to identify/manage personnel at risk.

☐ Strongly Disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly Agree ☐ N/A
☐ Don't Know

4. Quality Assurance routinely monitors rework/repair/maintenance tasks.

☐ Strongly Disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly Agree ☐ N/A
☐ Don't Know

5. Tool Control and support equipment licensing are closely monitored.

Open-ended Items



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Command Safety Climate Assessment Surveys



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CO ACCESS

LOGIN

Please enter the follow

COs AccessID

**Password
Protected**

Select from the following: ▼

Community

Option: COs AccessID from *squadron's prior surveys*
(if present, comparisons will use this instead of other squadrons)

Items Summary

[Instructions](#)[Overview](#)[Sample survey](#)[Take survey](#)[Admin](#)[CO](#)[Sample CO](#)[Map](#)[Help/FAQ](#)[Contact](#)[Suggestions](#)[Home](#)**HSL 100 Commander's Access****Select item(s) to display:**
☐ ☐ 1
☐ ☐ 1 ☒ Hide
Show averages for all items in:

HSL 100

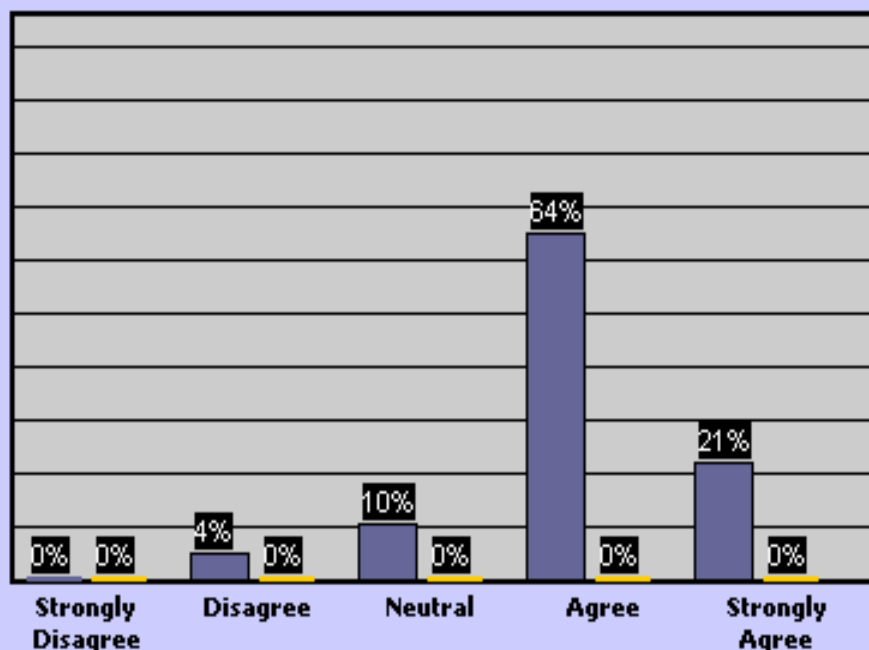
N/A:

☐ 0 ☐ 0

Don't Know:

☐ 6 ☐ 0**Select A Comparison Mode:**

- ☐ Aircraft Category
☐ Aircraft Community
☐ Aircraft Model
☒ None



My command conducts adequate reviews and updates of safety standards and operating procedures. (PA)

Legend (click small colored squares to hide percentage displays):HSL 100: ☒ n=70, mean=4, SD=0.7COMPARISON: ☐ n=

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http://www.safetyclimatesurveys.org/pagesboth/co_access/sysdefault.asp?NoCache=6%2F22%2F2004+12%3A23%3A02+PMGo

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Please read prior to proceeding!

Overview

This module provides access to the Command Safety Assessment Survey (CSA) database. It is intended to measure the perceived safety climate within Naval Aviation organizations. Squadron commanding officers can review their individual unit survey results, as well as compare them to a variety of other Naval Aviation communities, organizations, or locations. Other select commanders may review MCAS data, but only above the squadron level. As a reminder, this website preserves individual survey respondent anonymity.

To get an overview of the Command Safety Climate Assessment Survey process and its conceptual framework, please [click here](#).

CSA Items

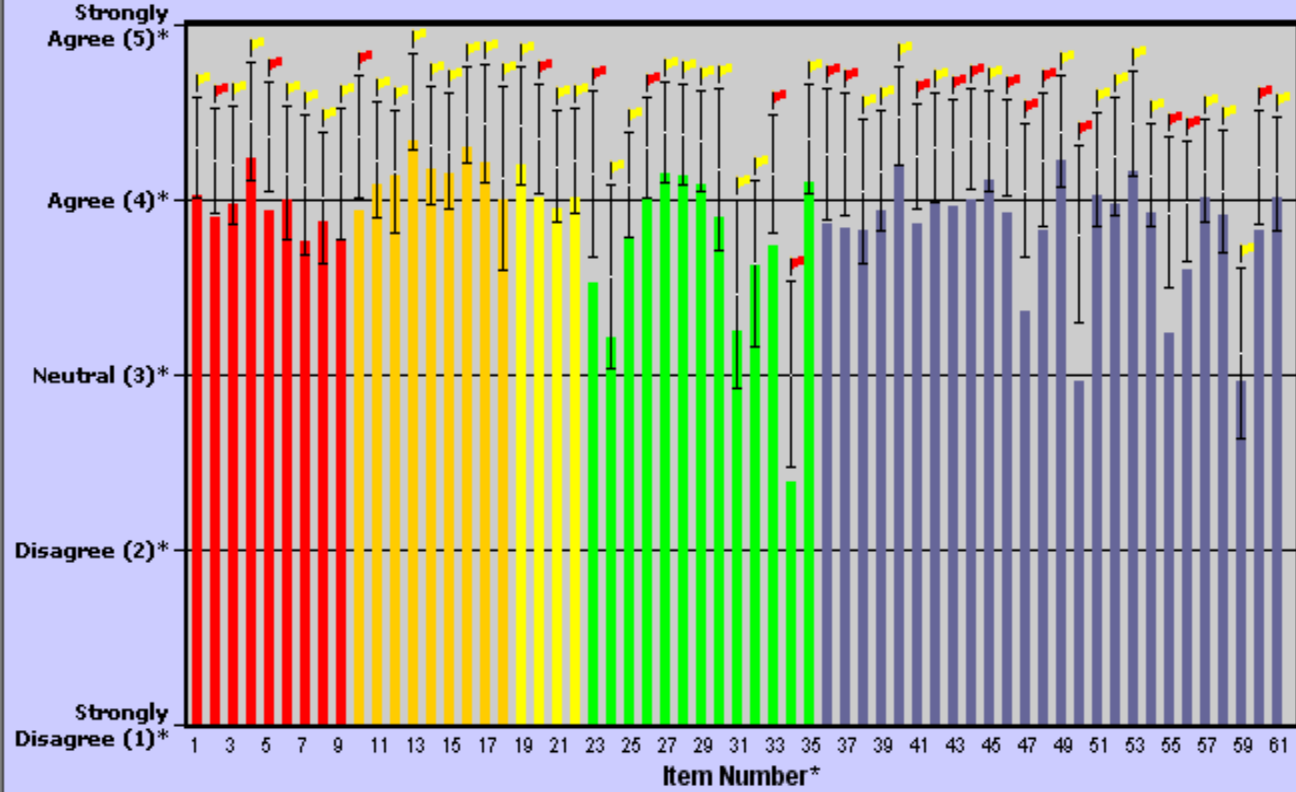
The following charts depict the response distribution for each survey item. Responses ranging from "Strongly Disagree" to "Strongly Agree" were assigned values from "1" to "5", respectively. Then, each item value was entered into a spreadsheet for analysis. Total responses, response mean, and standard deviation are presented in each chart. "N/A" and "Don't Know" responses were not computed into the statistical calculations.

Although means that fall between "4" and "5" are viewed as generally favorable, your specific organizational maintenance environment (e.g., deployed, non-deployed, current operations, manning, etc.) at the time of the survey needs to be considered. Also, some items with even limited negative responses, may generate concern, regardless of the mean (e.g., the survey item concerning "cutting corners" to complete a job). As a general guideline, consider each question based upon your evaluation of your current operating environment and relative importance that you place on that specific survey item.

If you have any questions please feel free to contact Bob Figlock at (831) 656-2581 or DSN 756-2581.

You may now view the **Individual Item** details page, which permits viewing results and comparisons for each survey item or the **Items Summary** page showing overall averages and standard deviations for all items. Note that once you get to the Individual Items page, you can click the **HSL 100** button to show the Items Summary. Similarly, from the Items Summary page, click **Done** to display Individual Item data.

Individual ItemItems Summary



*Note: Items 18, 23, 24, 30 & 34 are "reverse scored"

Comparison (all years):

- ☐ All (CSA) respondents
- ☐ All Navy (CSA only)
- ☐ All USMC (CSA only)
- ☐ All fixed wing (CSA only)
- ☐ All helo (CSA only)
- ☒ My community (HSL)

Legend

- PA: Process Auditing
- RS/SC: Reward Systems & Safety Culture
- QA: Quality Assurance
- RM: Risk Management
- CC: Command & Control
- C/FR: Communication/Functional Relationships

- I Comparison's standard deviation centered on its mean (white dot)
- ▲ Mean is less than comparison but within one-half standard deviation
- ▲ Mean is below one-half standard deviation less than comparison

Table

Done

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CO ACCESS

LOGIN

Please enter the following:

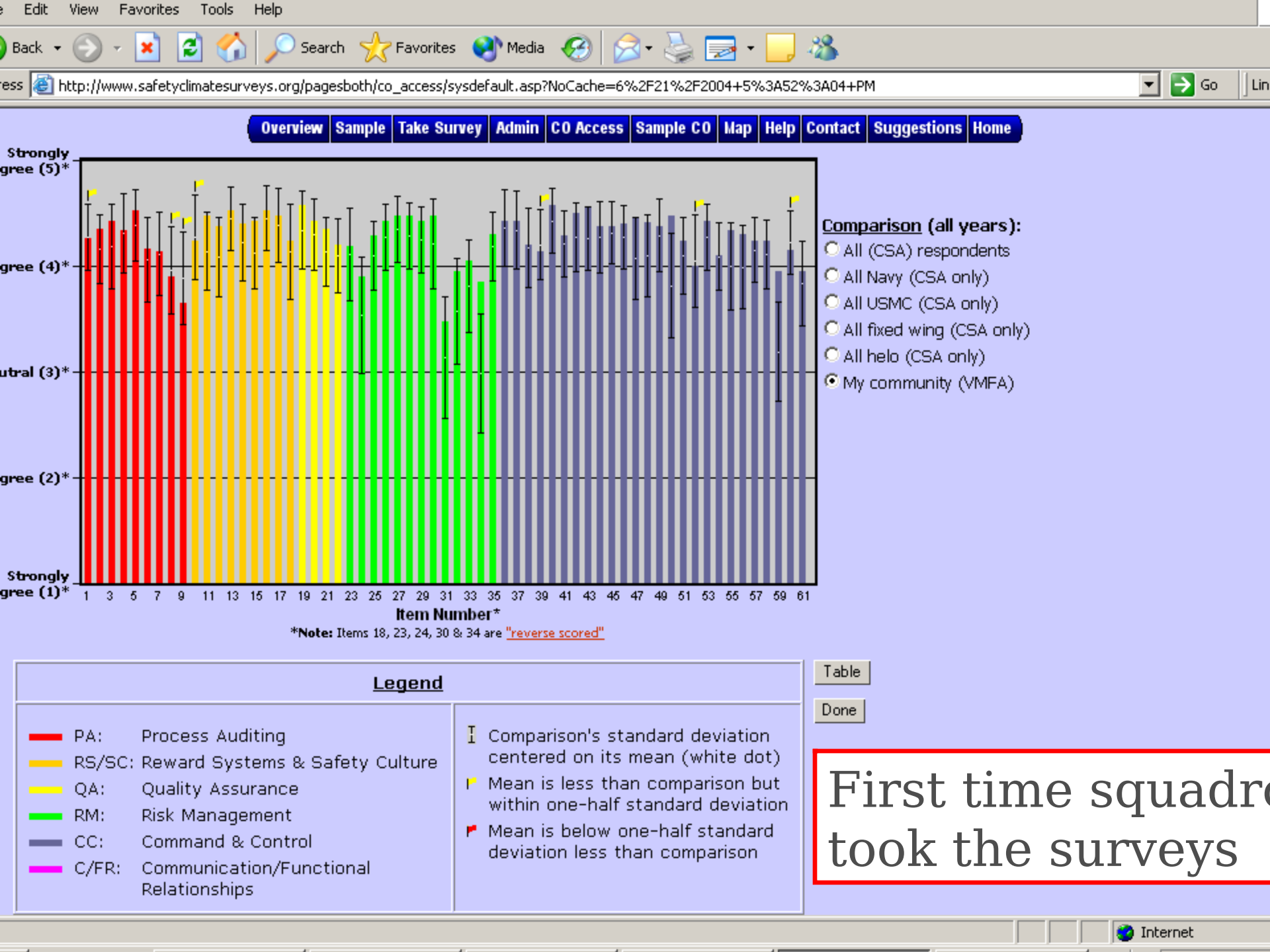
COs AccessID

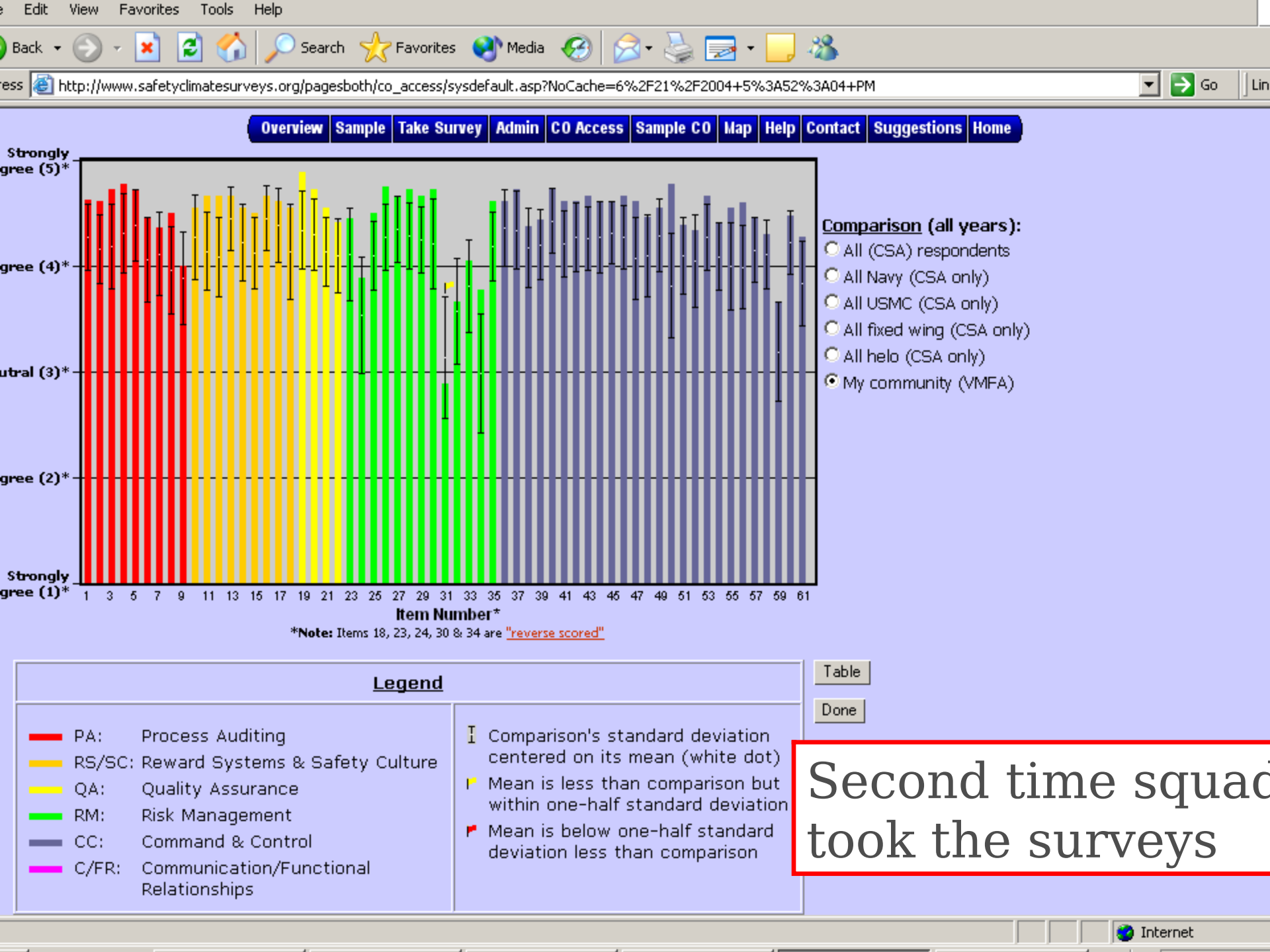
Select from the following: 

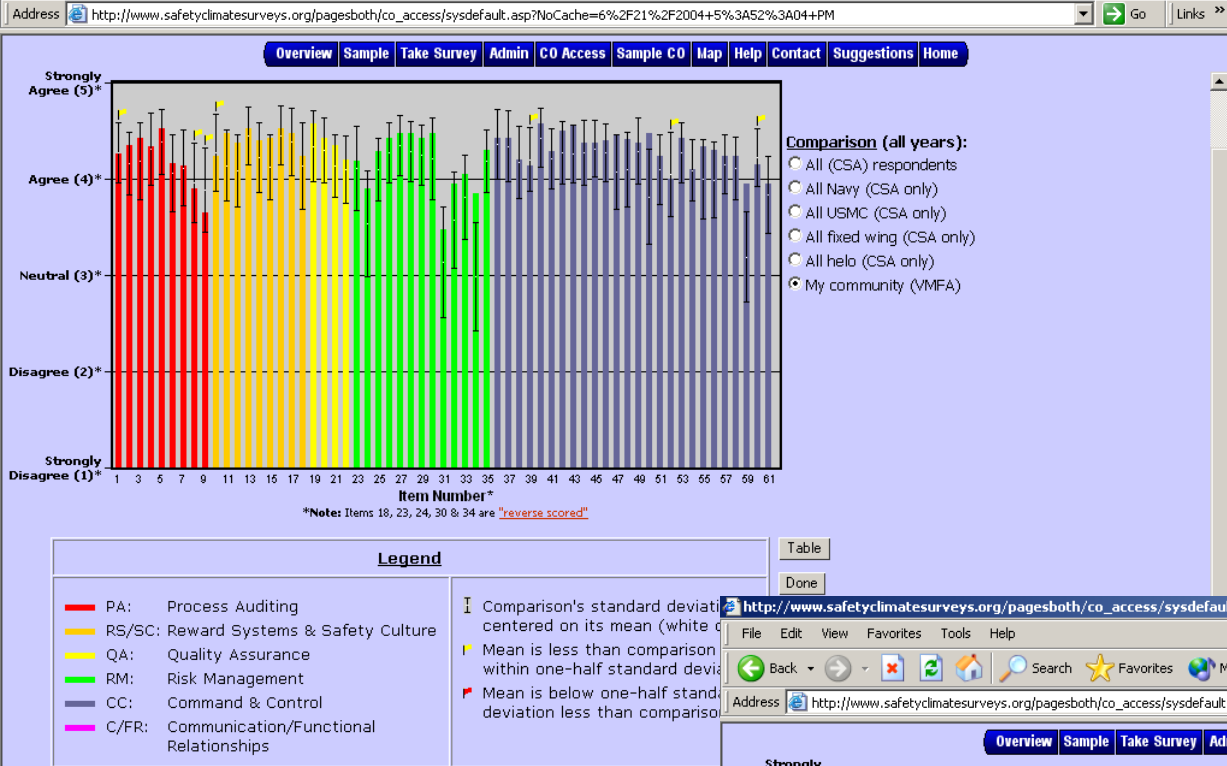
Community

Option: COs AccessID from squadron's *prior* surveys
(if present, comparisons will use this instead of other squadrons)

Compare yourself to yours

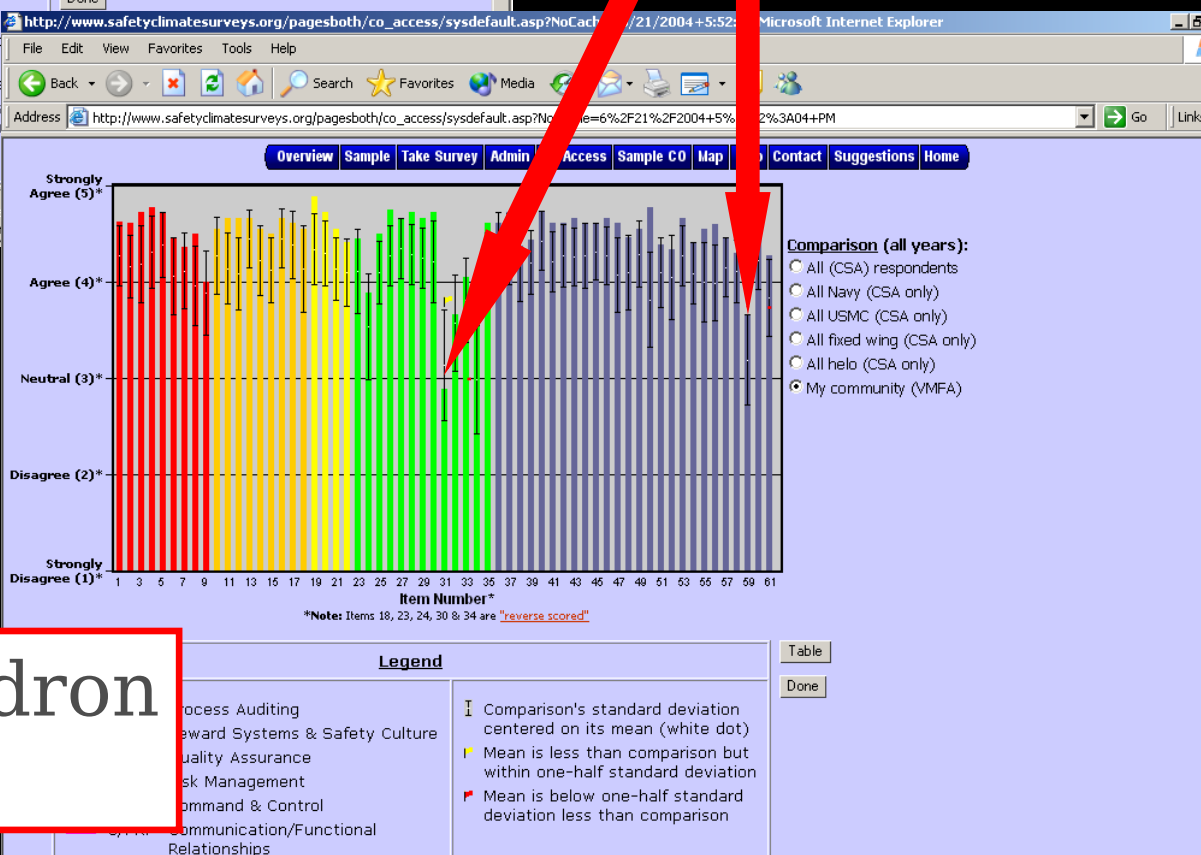






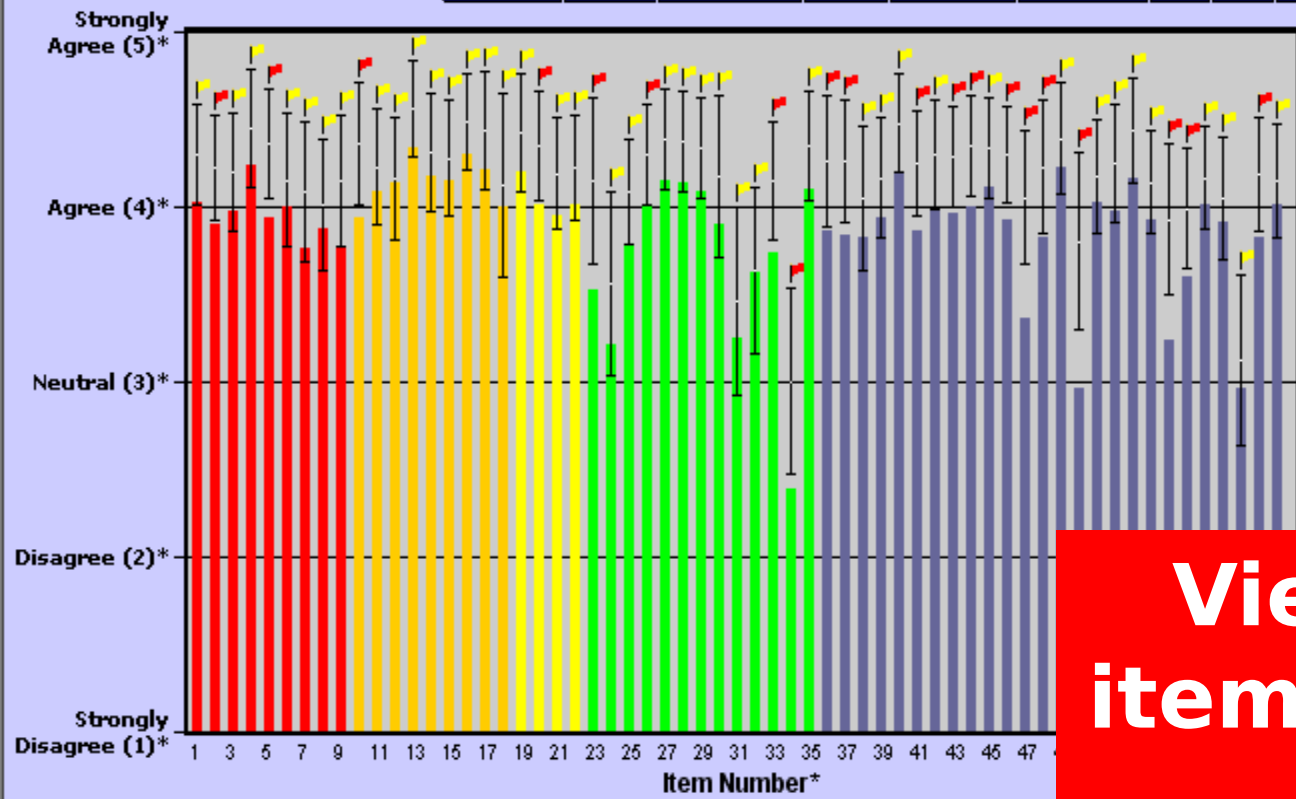
First time squadron took the surveys

Note: two di



Second time squadron took the surveys

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*Note: Items 18, 23, 24, 30 & 34 are "reverse scored"

Comparison (all years):

- ☐ All (CSA) respondents
- ☐ All Navy (CSA only)
- ☐ All USMC (CSA only)
- ☐ All fixed wing (CSA only)
- ☐ All helo (CSA only)
- ☒ My community (HSL)

View survey items in a table format

Legend

PA:	Process Auditing	I	Comparison's standard deviation centered on its mean (white dot)
RS/SC:	Reward Systems & Safety Culture	■	Mean is less than comparison but within one-half standard deviation
QA:	Quality Assurance	■	Mean is below one-half standard deviation less than comparison
RM:	Risk Management		
CC:	Command & Control		
C/FR:	Communication/Functional Relationships		

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Click "Ave." to sort by average value.
Note: Items 18, 23, 24, 30, & 34 are "reverse scored"

#	Cat.	Ave.	Comp. Ave.	Comp. SD.	Text
1	PA	4.63	4.27	0.63	My command conducts adequate reviews
2	PA	4.61	4.16	0.66	My command uses an internal audit and
3	PA	4.72	4.19	0.81	My command has a defined process to s
4	PA	4.78	4.31	0.75	My command closely monitors proficiency
5	PA	4.72	4.39	0.67	Command leadership is actively involved
6	PA	4.44	4.06	0.81	My command has a defined process to e
7	PA	4.36	4.12	0.75	Human Factors Councils have been successful in identifying aircrew members who pose a risk to safety.
8	PA	4.50	4.02	0.82	Human Factors Boards have been successful reducing chances of an aircraft mishap due to high-risk aviator.
9	PA	4.60	3.89	0.87	My command makes effective use of the flight surgeon to help identify and manage high risk personnel.
10	RS/SC	4.56	4.27	0.80	Command leadership encourages reporting safety discrepancies without the fear of negative repercussions.
11	RS/SC	4.67	4.13	0.74	Individuals in my command are willing to report safety violations, unsafe behaviors or hazardous conditions.
12	RS/SC	4.67	4.09	0.75	In my command, peer influence is effective at discouraging violations of standard operating procedures, or safety rules.
13	RS/SC	4.67	4.46	0.61	In my command, we believe safety is an integral part of all flight operations.
14	RS/SC	4.56	4.23	0.74	In my command, anyone who intentionally violates standard procedures, or safety rules, is swiftly corrected.
15	RS/SC	4.50	4.13	0.68	In my command, violations of operating procedures, flying regulations, or general flight discipline are rare.
16	RS/SC	4.67	4.44	0.61	Leaders in my command encourage everyone to be safety conscious and to follow the rules.
17	RS/SC	4.61	4.39	0.70	In this command, an aviator who persistently violates flight standards and rules will seriously jeopardize his/her career.
18	RS/SC	4.56	4.14	0.92	I am not comfortable reporting a safety violation, because people in my command would react negatively toward me.
19	QA	4.89	4.34	0.74	My command has a reputation for high-quality performance.
20	QA	4.72	4.30	0.67	My command sets high quality standards and strives to maintain quality control.
21	QA	4.56	4.14	0.65	My command closely monitors quality and corrects any deviations from established quality standards.
22	QA	4.41	4.09	0.70	Quality standards in my command are clearly stated in formal publications and procedural guides.
23	RM	4.44	4.11	0.88	Command leaders permit cutting corners to get a job done.
24	RM	3.89	3.54	1.10	Lack of experienced personnel has adversely affected my command's ability to operate safely.
25	RM	4.50	4.10	0.64	Safety decisions are made at the proper levels, by the most qualified people in my command.
26	RM	4.75	4.27	0.62	Command leaders consider safety issues during the formation and execution of operational and training plans.
27	RM	4.67	4.35	0.63	Command leadership has a clear picture of the risks associated with its flight operations.
28	RM	4.72	4.28	0.62	My command takes the time to identify and assess risks associated with its flight operations.
29	RM	4.67	4.25	0.63	My command does a good job managing risks associated with its flight operations.

In numerical order

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Click "W" to sort by item number.
Note: Items 18, 23, 24, 30, & 34 are "reverse scored"

#	Cat.	Avg.	Comp. Avg.	Comp. SD.	Text
19	QA	4.89	4.34	0.74	My command has a reputation
50	CC	4.78	3.81	0.99	Morale and motivation in my co
4	PA	4.78	4.31	0.75	My command closely monitors
26	RM	4.75	4.27	0.62	Command leaders consider s
5	PA	4.72	4.39	0.67	Command leadership actively
30	RM	4.72	4.21	0.86	My command has increased th
40	CC	4.72	4.43	0.61	My command is genuinely con
28	RM	4.72	4.28	0.68	My command takes the time to
3	PA	4.72	4.19	0.71	My command has a defined pr
20	QA	4.72	4.30	0.67	My command sets high quality
37	CC	4.72	4.33	0.74	Our command leaders and sup
29	RM	4.67	4.25	0.63	My command does a good job managing risks associated with its flight operations.
27	RM	4.67	4.35	0.63	Command leadership has a clear picture of the risks associated with its flight operations.
53	CC	4.67	4.27	0.64	In my command, NATOPS tests and check rides are conducted as intended, to candidly assess aircrew qualifications.
13	RS/SC	4.67	4.46	0.61	In my command, we believe safety is an integral part of all flight operations.
16	RS/SC	4.67	4.44	0.61	Leaders in my command encourage everyone to be safety conscious and to follow the rules.
12	RS/SC	4.67	4.09	0.75	In my command, peer influence is effective at discouraging violations of standard operating procedures, or safety rules.
46	CC	4.67	4.28	0.60	Command leadership willingly assists in providing advice concerning safety matters.
11	RS/SC	4.67	4.13	0.74	Individuals in my command are willing to report safety violations, unsafe behaviors or hazardous conditions.
43	CC	4.67	4.26	0.60	Command leadership is actively involved in the safety program and management of safety matters.
1	PA	4.63	4.27	0.63	My command conducts adequate reviews and updates of safety standards and operating procedures.
2	PA	4.61	4.16	0.66	My command uses an internal audit and hazard reporting system to catch any problems that may lead to a mishap.
17	RS/SC	4.61	4.39	0.70	In this command, an aviator who persistently violates flight standards and rules will seriously jeopardize his/her career.
47	CC	4.61	4.07	0.77	Command leadership reacts well to unexpected changes to its plans.
45	CC	4.61	4.31	0.59	My command ensures that all unit members are responsible and accountable for safe flight operations.
44	CC	4.61	4.27	0.69	Command leadership sets the example for compliance with flight standards.
42	CC	4.61	4.27	0.65	My command provides a positive command climate that promotes safe flight operations.
41	CC	4.61	4.21	0.63	Command leadership is successful in communicating its safety goals to unit personnel.
36	CC	4.61	4.37	0.73	My supervisor can be relied on to keep his/her word.

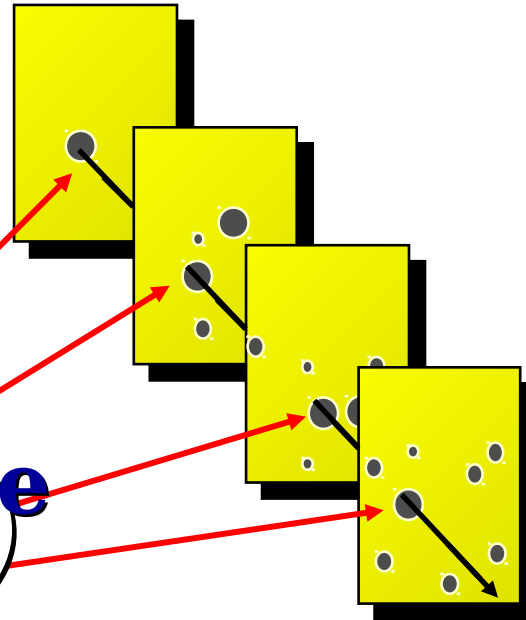
In descending order of the means

http://www.safetyclimatesurveys.org/pagesboth/sample_survey/default.asp?NoCache=6/21/2004+5:52:06+PM
Internet

A Tool to ID “the Holes”



Safety Climate Assessment



- ID Potential Issues (Hazards)
- Targets Potential Risk Areas
- Risk Assessment/Prioritization

How close are we to an HRO?

Command Safety Climate Surveys

***Where are we
today?***

Command Safety Climate Surveys

Over 90,000 survey responses
in the data base!

- 26,000 + Aircrew surveys
- 64,000 + Maintainer surveys

*Well over 100 survey improvements
based on CO debriefs and fleet inputs*



Relationships to Other Proactive Human Factors Tools

Naval Safety Center
Safety Surveys

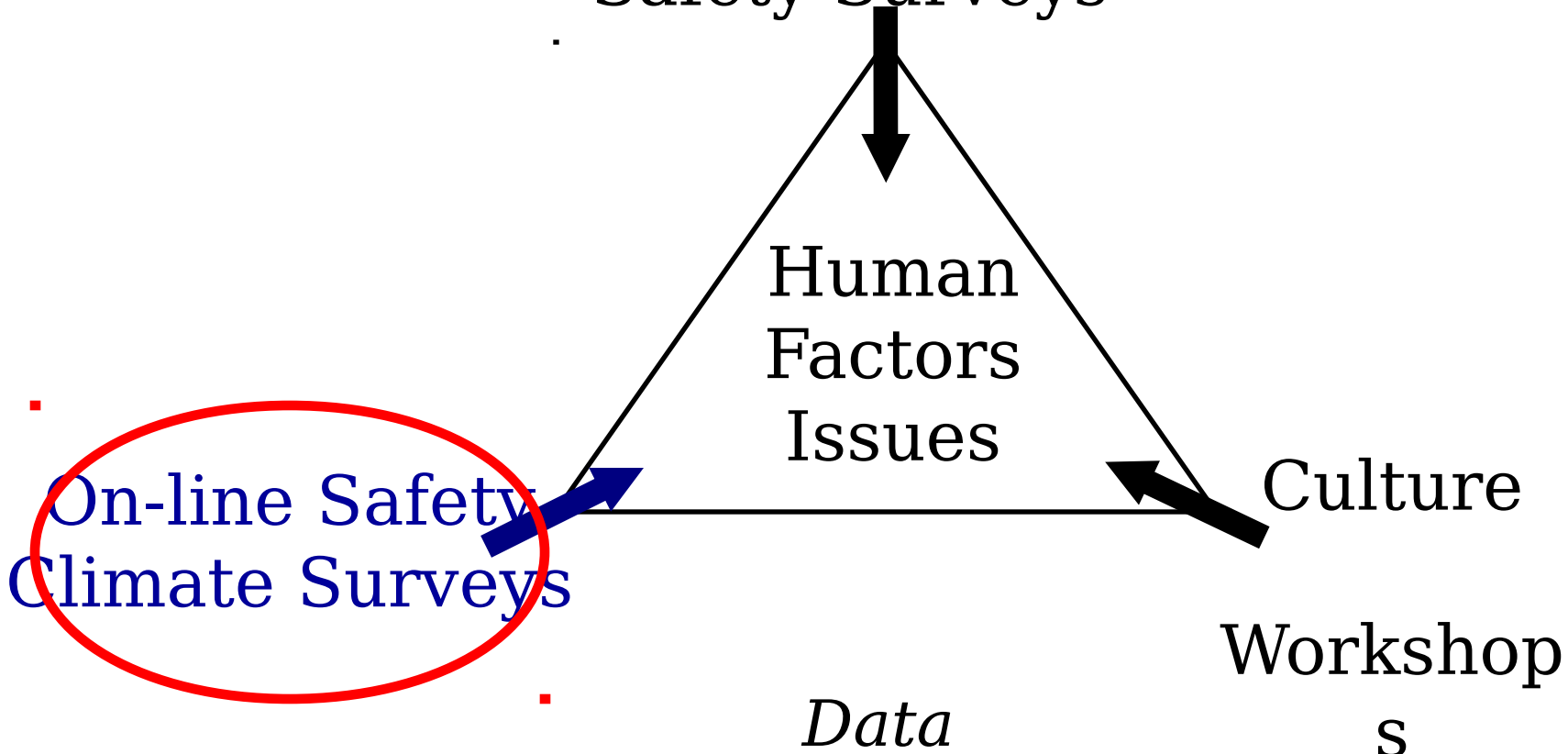
Human
Factors
Issues

Culture

Workshop
s

On-line Safety
Climate Surveys

*Data
Triangulation*



Itinerary

I. Past

II. Present

a. Application

b. Research



III. Future



Analysis Method

1. Compared CSA/MCAS data to Naval Aviation mishap data.
2. Used two-year timeframe after survey completion.
3. Developed “quartile chart” based relationships survey data and mishap occurrence.
4. Analyzed results.



Research Data

Mishap/Survey Data: Oct 00 -- May 04

Survey Cases: CSA - 682
MCAS - 606

Survey Responses: CSA - 23,373 MCAS -
55,033

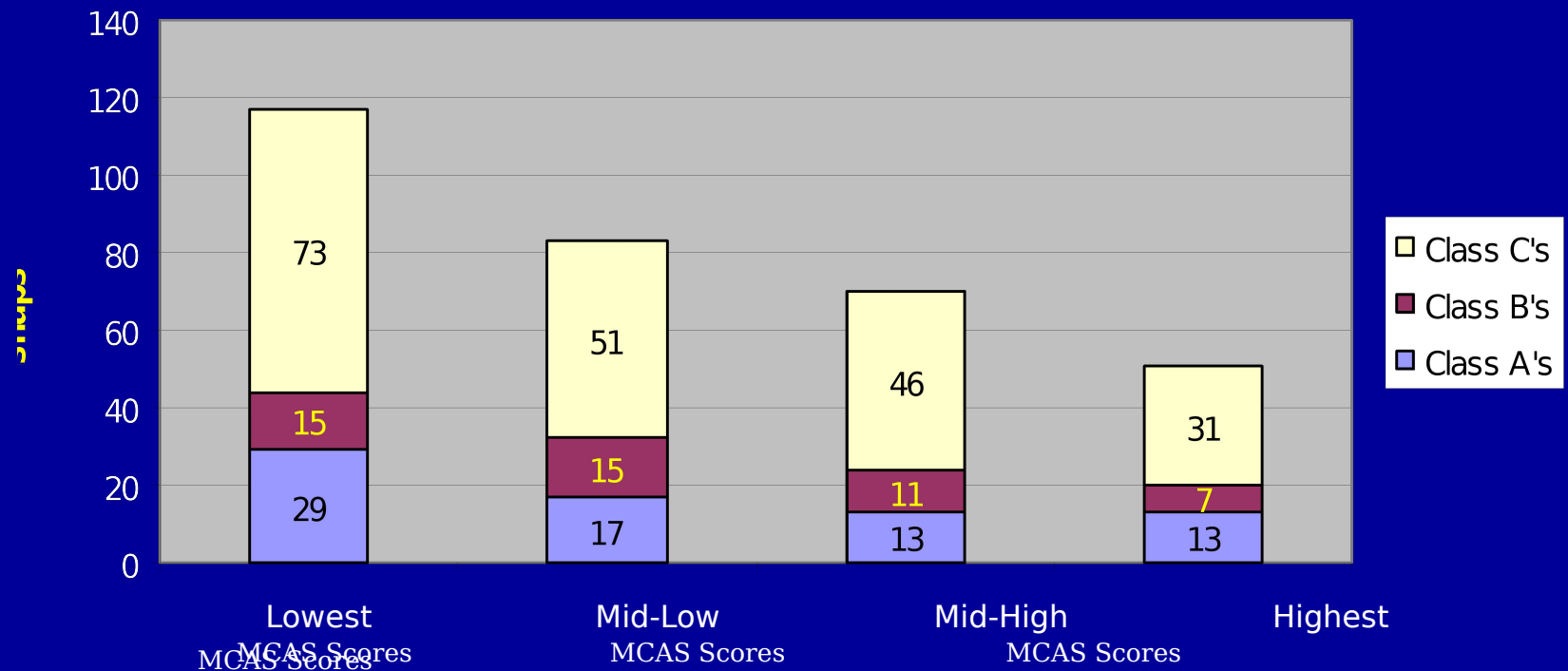


MCAS Respondent Average

-VS-

Mishap Frequency

Mishaps within 2 Years of MCAS Survey

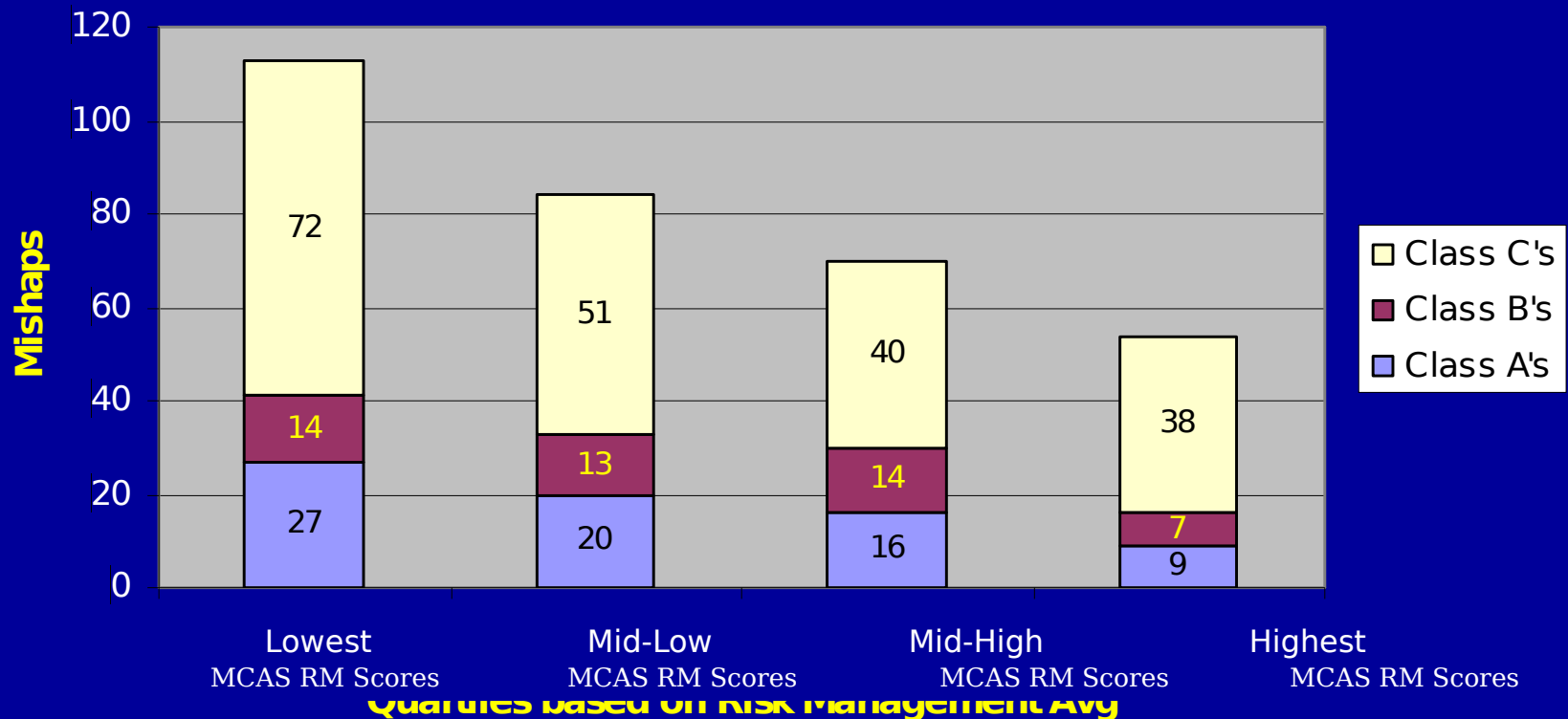


Qualities based on MCAS Survey Respondent Average



MCAS Risk Management Scores -VS- Mishap Frequency

Mishaps within 2 years of MCAS Survey





Resource Adequacy -vs- Mishap Frequency

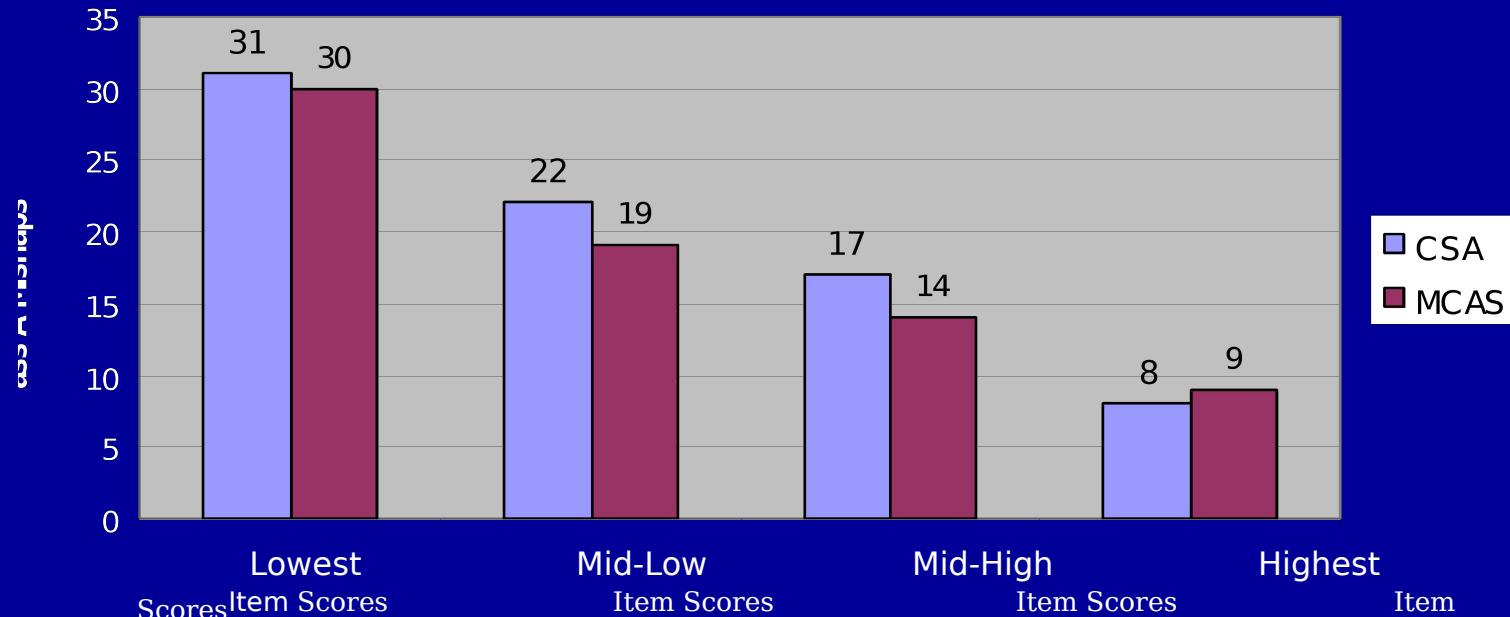
CSA Item #31: I am provided adequate resources (time, staffing, budget,

& equipment) to accomplish my job.

MCAS Item #24: I am provided adequate resources, time, personnel

to accomplish my job.

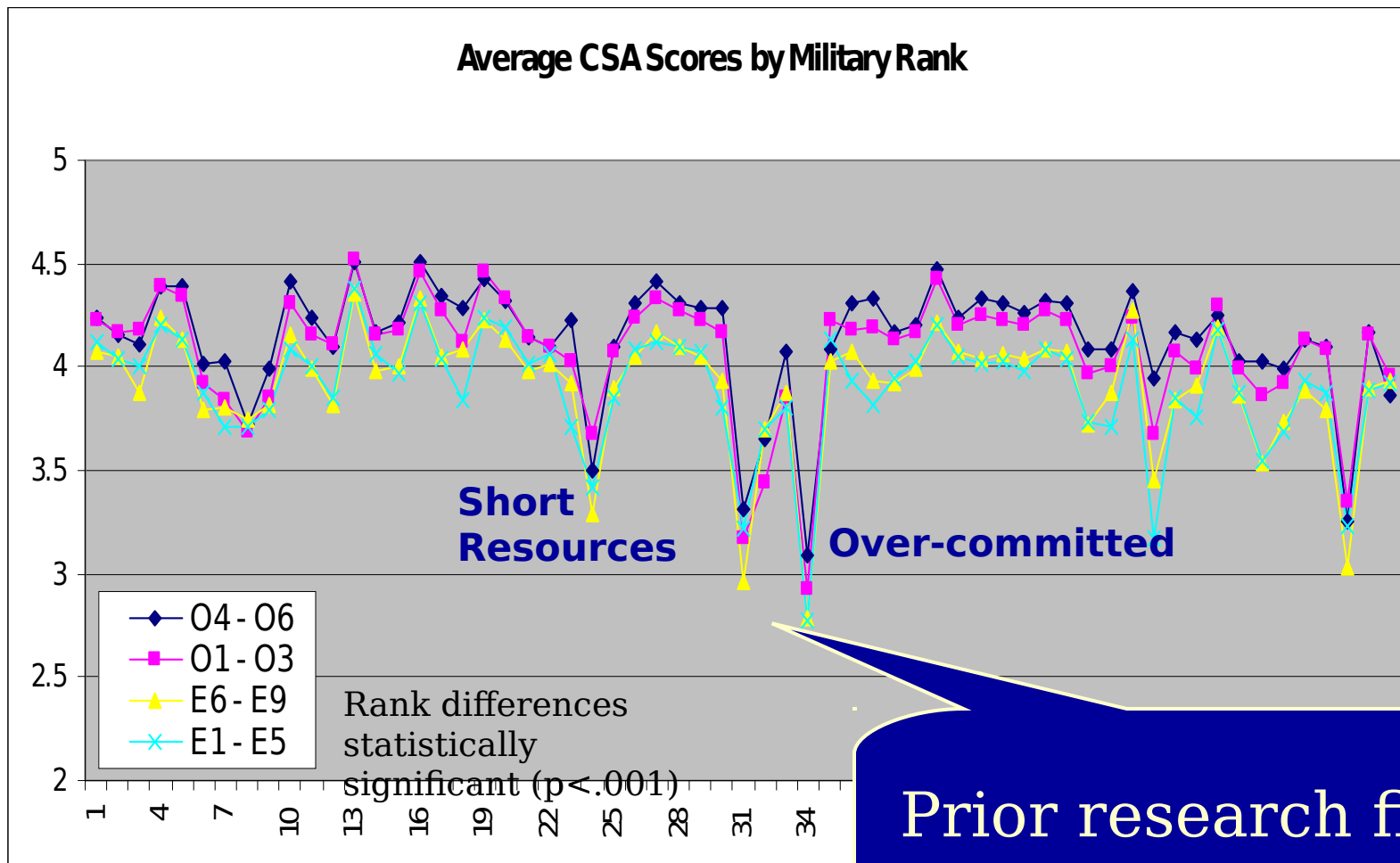
Class A's within 2 Years of Safety Climate Survey





Statistical Trend Analysis

Selected Safety Critical Questionnaire Items



Prior research findings
are consistent with
current research

Itinerary

I. Past

II. Present

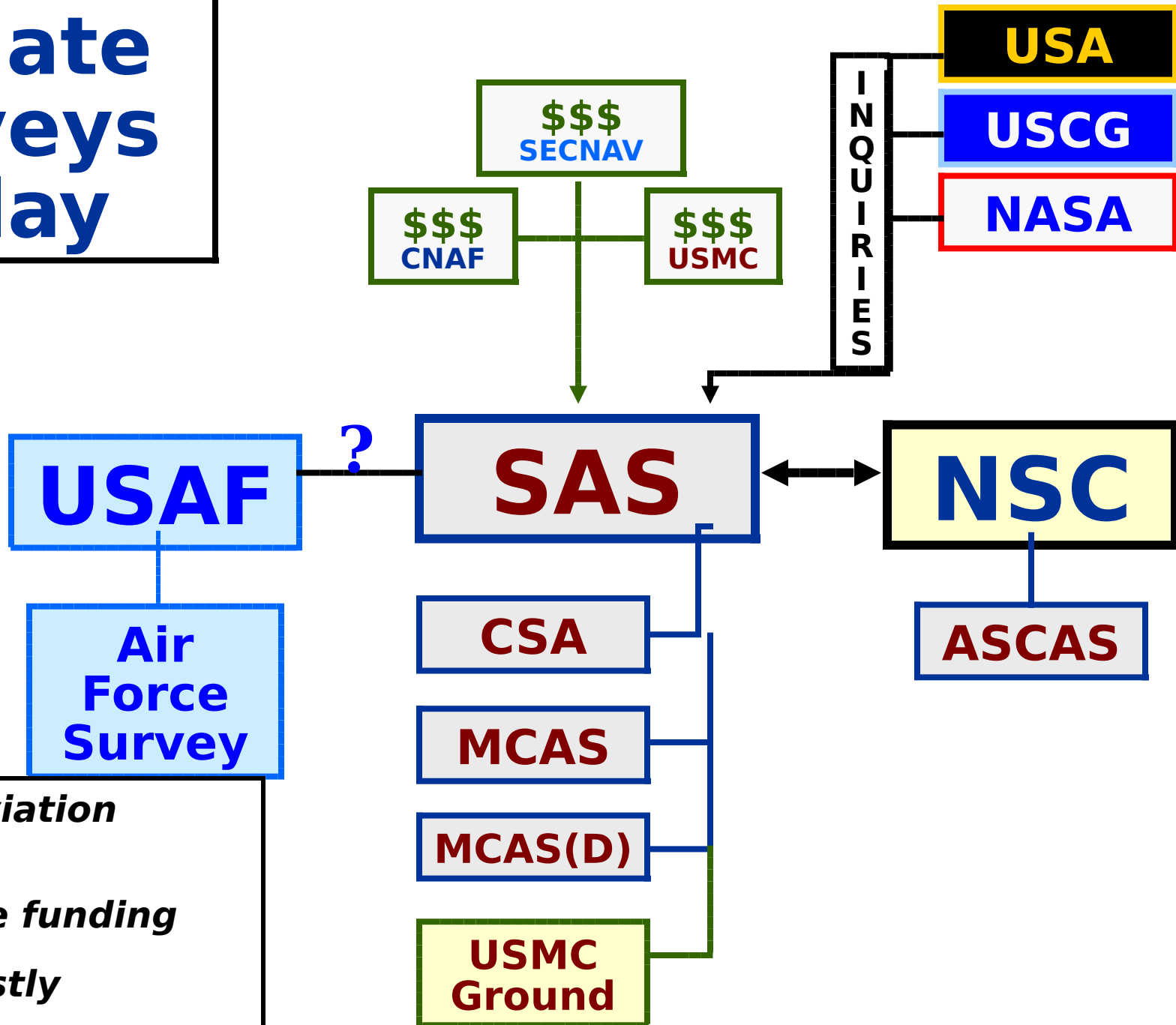
a. Application

b. Research

III. Future



Climate Surveys Today



- *Naval Aviation ahead*
- *Separate funding*
- *More costly*
- *Data Compatible?*

Climate Surveys Tomorro w

\$\$\$
DoD

SAS

JCSCA
(Joint Command Safety
Climate Assessment)

- *Synergy*
- *Common Process*
- *Economy of Scale*
- *Data Sharing*
- *Growth Potential*

USAF

USCG

USN

USMC

USA

AIR

AIR

AIR

AIR

AIR

**Av
Maint
Depot**

**Av
Maint
Depot**

**Av
Maint
Depot**

**Av
Maint
Depot**

**Av
Maint
Transport**

Space

Afloat

Afloat

Grnd/Tac

Grnd/Tac

Shore

Shore

Shore

Shore

Shore



Survey Development Process

PHASE	TASK	EXPERTISE
1. Analysis	Conduct interviews/ onsite observations of work environment	Interview protocol and survey construction
2. Design	Write survey items and demographics. Review quality and applicability	Interview protocol and survey construction
3. Development	Design specification and software coding	Software engineering
4. Validation	Perform reliability and validation tests	Psychology, data analysis, and statistics
5. Implementation	Implementation plan and delivery process	Organizational behavior, data analysis

Assessing Safety Climate:

Command Safety Assessment Survey

Thank You!

CAPT Ken Neaubauer, USN
Bob Figlock, Ph.D.

Naval Postgraduate School
Monterey, CA